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The CHEMIST

NOVEMBER, 1937 VOLUME XIV, NO. 8

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THE UNEMPLOYMENT COMMITTEE

• • •

WATER POLLUTION AND HEALTH

• • •

SCIENCE AND MANKIND

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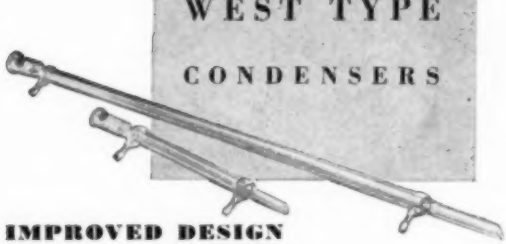

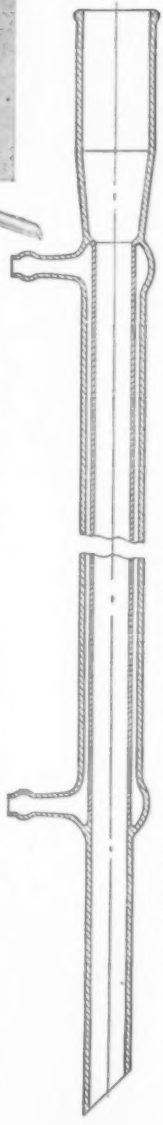

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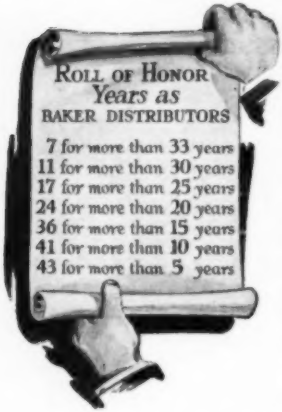
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The CHEMIST

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THE AMERICAN INSTITUTE OF CHEMISTS
HOWARD S. NEIMAN, *Secretary*
233 Broadway
New York, N. Y.

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Objectives
of the
AMERICAN INSTITUTE of CHEMISTS

To give chemists professional solidarity.

To put the profession back of a definite code of ethics.

To insist on adequate training and experience qualifications.

To educate the public to an understanding of what a chemist is.

To protect the public and the profession by fighting quackery.

To raise the economic status of chemists.

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Francis Patrick Garvan

CHEMISTS have indeed lost a friend in the death of Francis Patrick Garvan at his home in New York from pneumonia, on November eighth.

Mr. Garvan's devotion to his country and his contributions to its economic life are outstanding. During his service in charge of investigations for the New York office of the Alien Property Custodian and then as Alien Property Custodian in 1919, he conceived the idea of making the United States an economically self-sufficient nation through the establishment of a great chemical industry. In 1917 the United States had but six chemical plants. Accordingly, with the authority of President Wilson, he organized the Chemical Foundation, which purchased from the government the 4,813 patents which had been seized by the United States from Germany. These patents, mostly dye patents, were leased to private individuals and corporations on a royalty basis. The Chemical Foundation had a capital of $500,000 in preferred and common stock with interest limited to six per cent. each. Proceeds from the royalties were devoted to research and to donations for projects of importance to chemists or chemical industry.

As president of the Chemical Foundation, Mr. Garvan directed the distribution of funds to such worthy projects as the establishment of sixty-four scholarships in chemistry; the donation of $850,000 to the Farm Chemurgic Council; the bestowal of $275,000 to *Chemical Abstracts*, published by the American Chemical Society; research on the production of paper and rayon from slash-pine, to bring new industrial prosperity to the Southern states; the support of research on the common cold; the publication of scientific books; contributions to the International Congress of Soil Science; to the National Research Council,

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and to the U. S. Institute for Textile Research; and other projects for the benefit of chemistry.

Not satisfied with establishing in the United States an independent dye and chemical industry, which since the war has become the fourth largest industry in this country, Mr. Garvan conceived even greater benefits to this country through chemistry. He foresaw agriculture placed on a self-sufficient basis as a source of raw materials for chemical industry. During the late years, in his capacity as president of the National Farm Chemurgic Council, he has devoted himself to plans for the development of the use of alcohol for fuel, and for the extraction of chemical raw-materials from agricultural products. He believed this to be the solution for the economic problems facing this nation, and although a Democrat, opposed governmental policies which he felt were inimical to the utilization of the natural wealth of agricultural production.

He also contributed from his personal fortune to the financing of six four-year chemistry scholarships at Yale or Vassar in memory of his daughter, Patricia.

During his lifetime his great contributions to the chemists of this country were recognized by various honors. Fordham, Yale, Trinity, and Notre Dame awarded honorary degrees to him. He was the only layman to receive the Priestly Medal of The American Chemical Society. He also received the Mendel Medal, awarded by Villanova College to that Catholic who has signally advanced the cause of science. THE AMERICAN INSTITUTE OF CHEMISTS awarded to him and to Mrs. Garvan, jointly, its medal, in 1929, for "noteworthy and outstanding service to the science of chemistry, or to the profession of chemist in America."

Mr. Garvan was a lawyer, not a chemist, and he had an outstanding legal career in addition to his work for chemistry. Nevertheless, he was one of the first Americans to realize the part that chemists could play in building up this nation. As a solution for his country's economic problems, he offered the services of chemists, who would utilize the agricultural products of the rich earth of fertile America to produce the raw materials for industry's use.

That vision of the ability of chemists to contribute to the advancement of a nation must inspire all chemists to serve and to achieve for the benefit of humanity.

A Few Figures from the Files of the Committee on Unemployment and Relief for Chemists and Chemical Engineers

By M. R. BHAGWAT, F.A.I.C.

Secretary, Chemists' Unemployment Committee

AT A recent meeting of the Councilors of THE AMERICAN INSTITUTE OF CHEMISTS, President Toch requested me to present to the members of THE AMERICAN INSTITUTE OF CHEMISTS, through the channels of the publication, THE CHEMIST, a few important facts which I have observed during the past five years of our work at the Unemployment Committee's office.

Let me begin first by presenting figures regarding registration and placements. Since January, 1931 to date:

TOTAL REGISTRATION	2306
TOTAL PLACEMENTS	759
Registration now on the ACTIVE FILE	732
Registration now on the INACTIVE FILE	815
UNSUITABLY EMPLOYED or TEMPORARILY EMPLOYED	204

Except for a very minor percentage, every registrant received a college or university degree majoring in chemistry or chemical engineering and resided in the greater metropolitan area (fifty mile radius from City Hall, New York City) at the time of registration. The non-graduates had more than four years of industrial experience and held responsible positions.

In addition to the above, the Committee received applications from 458 chemists and chemical engineers residing in other parts of the country.

We also received applications from about three hundred to four hundred men and women who were not qualified to register due to insufficient education.

To the above may be added so-called "border-line" cases such as a civil engineer who, by accident, happened to be employed for a short while as a chemical engineer actually doing the work of a plant operator; a geologist having some metallurgical experience; a person having a medical degree and having minor experience in biochemistry; a person having textile experience, particularly in relation to printing shops, who

considers himself as a textile chemist; a chemical engineer with one or two years of actual chemical experience and fifteen years of real estate management; a chemical salesman with some experience in the chemical industry but who had previously operated a florist shop; a person inventing mechanical devices for mixing chemicals for the cosmetic and perfume industries; consulting chemists whose records could not be properly identified as to the exact nature of their knowledge of chemistry or chemical engineering; graduates of colleges of pharmacy having had experience as pharmacists and claiming to have sufficient education as pharmaceutical chemists; persons educated in foreign institutions claiming to be chemists but not having actual experience in that field.

To the above can be safely added a considerably large number of technicians who have had some experience in routine and mechanical testing with chemical or allied industries.

This roughly shows the nature of applicants seeking work in the chemical industry.

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Water Pollution and Health

By **Max Trumper, Ph.D., F.A.I.C.**
Consultant in Industrial Toxicology

A chemist influences public health. Dr. Trumper, a member of the Mayor's Water Commission of Philadelphia, read the following paper before the Pennsylvania State Legislative Committee on Water Pollution.

MOST of us still drink some water. Water, like air, is so fundamental to our existence that we accept it as a matter of course and, like air, it arouses our interest only when its supply fails or becomes markedly contaminated. In securing water for large cities the first requisite formerly was quantity. There must be sufficient not only for the people's needs but also for the city's industries. Then attention was paid to quality — but quality to insure fitness for industrial use. Manufacturers saw to it that the chemical constituents of their water supply were such as to cause a minimum of interference with the efficient operation of their industrial processes, especially the boilers. The railroads were among the first to establish chemical analyses of their water. The concern for water of a quality fit for the human machine came later.

Wherever water supplies are taken from up-land reservoirs, because of the very few sources of contamination, we get a drinkable draft. But where, as in our own city, streams and rivers polluted with industrial trade wastes are used as sources of drinking water, the recipe for our water cocktail is something like this: Plenty of alum or aluminum sulphate, some soda ash and lime, and always plenty of chlorine, with a dash of copper sulphate and permanganate. This together with acid mine drainage and super-chlorination has made water a strong drink. Have you ever watched, as I have done, the cleaning out of one of our reservoirs? The Belmont sedimentation basin located at City Line and Belmont Avenue has been cleaned for the first time in many years. It has taken a large force of men and trucks about one-half year to clean out a single sedimentation basin. This sediment which has accumulated on the bottom and sides is similar in appearance to what the street cleaners remove in the spring and fall from the street culverts — a black sticky ooze. I brought home a bucketful of it and analyzed this material in the laboratory. This muck is rich in coal-culm and tar, contains oil and

other wastes and chemicals that are not soluble in water. In stormy periods, when this water is run off from the reservoirs before sedimentation is completed, we are bound to get some of it in our drinking water. To have clean basins in which to store our water is indeed a welcome change. However, because the water is still loaded with river wastes our cleaned basins will not stay clean long. My suggestion is that more basins be built. Sediment basins should be close to the river. This will insure a sufficient water supply during dry spells like the 1930 drought in Pennsylvania. It will also avoid the necessity of pumping into the reservoirs Schuylkill water during storm periods when the sediment is excessive, as in the spring floods of 1936. Ample space and time for sedimentation insure dilution of seriously polluted water by cleaner water, reduce greatly the amount of chemical treatment necessary, and give the sunlight and air a chance to aid in the natural process of self-purification.

In former years the typhoid producing germ ranked as public enemy number one. In this, public health and water-works officials have waged a successful war. Their chemical barrage has kept the typhoid enemy in no man's land.

In the meantime, there has developed a different kind of health problem, namely the pollution of our waters by industrial wastes of organic and mineral origin. This problem is becoming increasingly complex because it requires several years to eliminate some of the trade-wastes, during which time new wastes make their appearance. The recent advances in synthetic chemistry have brought many new and old chemicals on the market which find their way into our rivers and streams. Another disturbing factor, for example, can be seen in dye wastes: Before the World War, dyes had to be imported and their high cost prevented their being thrown off in large quantities as trade wastes. But today owing to the advances made by American chemists, these aniline dyes cost much less and therefore they are literally dumped into our streams, even though more than one hundred of these aniline dyes are poisonous. Recently I have found toxic aniline dyes in ice that came from a dye plant one mile up-stream. The more insidious trade wastes are the water soluble ones that have no warning color, odor or even taste.

To what extent are these chemical constituents a menace? The general public and many physicians agree that, for some years, so called intestinal-grippe or intestinal-influenza has been on the increase. These terms including intestinal-flu are a scrap-basket classification of ailments, not diagnosed as to cause, but recognized by symptoms of irritation of the

intestines. While such symptoms can come from bacterial infection, I contend that many of these cases are due to irritating chemicals present either as trade wastes or from the excessive chemical treatment of our water required to prevent water-borne diseases. From my own observation in the laboratory, I have found that often when the number of bacteria in the water has been reduced to the lowest level, the chemical strength has been raised to its highest level. Now if this chemical irritation persists, those individuals having a sensitive intestinal tract will in time be predisposed to the more serious condition of colitis — an ailment which, physicians also agree, is increasing.

And what is the effect of such chemicals upon the body machine? Even though a glass of water will contain only a trace, we must recall that the average person in a life-time will drink about ten thousand gallons of water. This means that scientists must study the cumulative effects of such chemicals. We know how much concern is given to see that boiler tubes do not become loaded or clogged with scale. Why not apply the same concern to our own body tubes? Water is essential to the maintainance of all body functions: The regulation of body temperature is facilitated by the presence of circulating water and by the evaporation of water from the surface of the skin. The mucous surfaces of the body cannot function normally unless they are in a moist state. The kidneys can more satisfactorily eliminate toxic substances if such substances are well diluted. The movements of joints are possible only when fluid is present. Water is intimately related to absorption as in the digestive system. Finally, the exchange of carbon dioxide and oxygen in the lungs is largely dependent upon a condition of adequate moisture of the alveolar epithelium of the lungs.

Now what has our community done and what is it doing to secure good water for us? The general public has reason to be grateful to sportsmen for their activity in behalf of pure streams. Too few people realize the good work and patience of these and other public spirited groups. Today we have the men with the chemical knowledge to insure a potable water. The sportsmen and the toxicologists unite in striving to keep the streams safe for fish. They do this for more reasons than the maintenance of the pleasant pastime of fishing. If we keep our streams safe for fish, we shall keep them reasonably safe for human beings. Fish are excellent indicators of the presence of poisonous chemicals in the water. They are very sensitive to ammonia but different fish show varying degrees of sensitivity to copper sulphate. Fish will die if there is too little oxygen in the water, which always indicates pollution.

Fish will die when some strong chemical kills off the small forms of aquatic life which in turn clog up the gills of the fish. In other words, fish are good laboratory animals and it is better to test the effects of the poisonous trade wastes on them than on human beings.

The perennial question of water pollution abatement is now being recognized as demanding action. The technical knowledge available today would insure a substantial reduction of the pollution load on our waters. Industry invariably protests because of the excessive costs, though knowing that the longer action on this question is deferred, the greater the costs of pollution abatement. Then when a pure streams bill comes before the State Legislature creating power to act against the pollution of our streams, one hears much as to the constitutional defects of the pending legislation. I have, therefore, attempted to submit to you some of the constitutional effects of polluted water on the human machine.

In closing, I wish to emphasize that if we neglect to solve the problem of water pollution at its source, we will be somewhat like the man in a leaky boat who is continually bailing out the water but makes no attempt to plug the leak.

Science and Mankind

By H. G. Wells

THE world is undergoing immense changes. Never before have the conditions of life changed so swiftly as they have changed for mankind in the last fifty years. We are now just beginning to realise the nature of these changes, to find words and phrases for them and put them down. It was only in the beginning of the twentieth century that people began to realise the real significance of that aspect of our changing conditions to which the phrase "the abolition of distance" has been applied.

Various results of railways, steamship, and telegraph became manifest, they were not observed to be the beginnings of a profound revolution in the life of mankind, the attention of young people was not drawn to them; no attempt was made, or considered necessary, to adapt political and social institutions to this creeping enlargement of scale.

But there are still other changes outside this vast advance in the

pace and power of material life. The biological sciences have undergone a corresponding extension. Medical art has attained a new level of efficiency; we may all live now, we discover, without any great burthen of toil or fear, wholesomely and abundantly, for as long as the desire to live is in us.

But we do not do so. All this possible freedom of movement, this power and abundance, remains for most of us no more than possibility. There is a sense of profound instability about these achievements of our race. Even those who enjoy, enjoy without security; and for the great multitude of mankind there is neither ease, plenty, nor freedom. Hard tasks, insufficiency, and unending money worries are still the ordinary stuff of life. Over everything human hangs the threat of such war as man has never known before, war armed and reinforced by all the powers and discoveries of modern science.

When we demand why the achievement of power turns to distress and danger in our hands, we get some very unsatisfactory replies. The favourite platitude of the politician, excusing himself for the futilities of his business, is that "moral progress has not kept pace with material advance." That seems to satisfy him completely, but it can satisfy no other intelligent person.

Since Stone Age days mankind has had the illusion that it knew how to live; the slow progress of the years, the ultimate religions, all supported this innate belief, that if he knew nothing else, man knew how to live. And this mentality still exists in these days. The findings of early scientific pioneers, such as Cavendish and Priestly, were tolerated because mankind could not see the ultimate application of science; and the vast, ever-increasing discoveries of to-day are still regarded with the Stone Age mind that cannot, because it has not even tried, apply the results of science to living. Tirades against science and scientific progress are futile. We cannot stop such progress if we would, nor is it desirable. What is needed is not less science but more science. We must evolve a science of living. We do not yet know how to live—science can tell us, if we will but make a science of life.

Our political and economic ideas of living are out of date, and we find great difficulty in adjusting them and reconstructing them to meet the huge and strenuous demands of the new times. That is really what our gramaphone politicians have in mind—in the vague way in which they have anything in mind—when they put on that well-worn record about moral progress not having kept pace with material inventions.

Socially and politically we want a revised system of ideas about conduct, a view of social and political life brought up to date. It is preposterous that we should still be followed about and pestered by war, taxed for war preparations, and threatened bodily and in our liberties by this unnecessary and exaggerated and distorted survival of the disunited world of the pre-scientific era. Our eating and drinking and clothing and housing and going about is also cramped, thwarted, and impoverished, because we do not know how to set about shaking off the old ways and fitting the general life to our new opportunities. The strain takes the form of increased unemployment and a dislocation of spending power. Great swarms of us find ourselves thrown out of work. Unjustly, irrationally. The economic machine creaks and makes every sign of stopping—and its stopping means universal want and starvation. It must not stop. There must be a reconstruction, a change-over.

I have been keenly interested, particularly since the war, in public thought and public reactions. What they know and think and what they are ready to believe impresses me as remarkably poor stuff. A general ignorance—even in respectable quarters—of some of the most elementary realities of the political and social life of the world is, I believe, mainly accountable for much of the discomforts and menace of our times. The uninstructed public intelligence of our community is feeble and convulsive. It is still a herd intelligence. It tyrannises here and yields to tyranny there.

It is imperative that every voter should have some conception of the experiments in economic control that are in progress in Great Britain, America, Italy, Germany, Russia, and elsewhere. Such experiments are going to affect the whole of his or her life profoundly. So, too, are the experiments in monetary and financial organisation.

The besetting vice of economic science, orthodox and unorthodox alike, has been the vice of beginning in the air, with current practice and current convictions, with questions of wages, prices, values, and possessions, when the profounder issues of human association are really not to be found at all on these levels. The primary issues of human association are biological and psychological, and the essentials of economics are problems in applied physics and chemistry. The first thing we should examine is what we want to do with natural resources, and the next, how to get men to do what has to be done as pleasurably and effectively as possible. Then we should have a standard by which to judge the methods of to-day.

Science and Mankind

By **Sir Richard Gregory, BT., F.R.S.**

INDUSTRIAL changes have been so great and rapid that it is no wonder that social instability exists everywhere. Our national leaders and administrators need wide knowledge and keen foresight to enable them to make the most effective use of the technical forces which are shaping the conditions of modern life. The scientific worker and technologist usually have their attention concentrated so closely upon their own particular subjects that they are indifferent to the social effects of their own activities.

Lack of familiarity with scientific matters has been an important factor in the crumbling away of our social structure under the stress of economic disaster, but we can stabilise the new social pattern by securing that action is related to knowledge. We are living in a period of great industrial and other material changes, the consequences of which can scarcely yet be predicted by the technical man, let alone be visualised by the average administrator. Equally we are at the beginning of a new era of biological knowledge with new possibilities of physical and mental health, if our resources are planned intelligently with the object of satisfying real human needs.

Both rightly and wrongly, science has been blamed for much of the wastage of life which has been brought about by the rapid applications of scientific knowledge to purposes of peace and war. Men of science are, however, citizens as well as scientific workers; and they are beginning to realise their special responsibilities for securing that the fruits of scientific knowledge are used for human welfare. They can no longer remain indifferent to the social consequences of discovery and invention, or be silent while they are blamed for increasing powers of production of food supplies, providing means of superseding manual labour by machines, and discovering substances which can be used for destructive purposes. It would be a betrayal of the scientific movement if scientific workers failed to play an active part in solving the social problems which their contributions to natural knowledge have created.

The view that the sole function of science is the discovery and study of natural facts and principles without regard to the social implications of the knowledge gained can no longer be maintained. It is being widely realised that science cannot be divorced from ethics or rightly absolve itself from the human responsibilities in the application of its

discoveries to destructive purposes in war or economic disturbances in times of peace. Men of science can no longer stand aside from the social and political questions involved in the structure which has been built up from the materials provided by them, and which their discoveries may be used to destroy. It is their duty to assist in the establishment of a rational and harmonious social order out of the welter of human conflict into which the world has been thrown through the release of uncontrolled sources of industrial production and of lethal weapons.

In the consideration of the social aspects of science, scientific workers must be capable of appreciating the non-technical problems involved, as well as the scientific and technical issues, if they are to make an effective contribution to the scientific control of civilisation. They must, first of all, promote the extension of the application of scientific method to the consideration of social, economic, and political questions, so that accurate knowledge may be obtained upon which sound conclusions may be based and progressive policies or programmes established. The task of securing action upon the facts is scarcely one for scientific workers as such; though it is their responsibility as individual private citizens to do all in their power to secure the appropriate action. They have, however, a further public duty which they cannot lightly evade; and that is the task of awakening public opinion to the grave danger incurred in the neglect to take action along the lines indicated by the results of impartial and scientific enquiry.

Editor's Comment: The preceding two articles on "Science and Mankind" are here reprinted from *The Manufacturing Chemist* (*London*) for their expression of the modern tendency to look to scientists for a solution of civilization's problems.

Positions Wanted

By Fellow of The American Institute of Chemists, Ph.D. degree from Cornell. Age 36. Christian. Experienced in cellulose and nitrocellulose, plastics, rubber; organic and physical chemistry. Please reply to Box 32, THE CHEMIST.

Chemical Engineer, chemist, J.A.I.C., recent graduate (five year course, Ch.E. and B.S. degrees) age 25, single; six months' experience in edible oils, school research in electrochemistry; seeks suitable connection, research or control in any field, go anywhere. Please reply to Box 20, THE CHEMIST.

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Treasurer, BURKE H. KNIGHT

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CHAPTER REPRESENTATIVES

New York	*Niagara*	*Philadelphia*	*Washington*
FRED'K W. ZERBAN	A. W. BURWELL	J. W. E. HARRISSON	LOUIS N. MARKWOOD

October Meeting

The one-hundred and forty-sixth meeting of the Council of THE AMERICAN INSTITUTE OF CHEMISTS was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on October 28, 1937, at 6:00 o'clock P.M.

President Maximilian Toch presided.

The following officers and councilors were present: Messrs: F. G. Breyer, H. T. Clarke, B. H. Knight, H. S. Neiman, W. T. Read, J. W. E. Harrisson, N. A. Shepard, M. Toch, and F. W. Zerban.

Mr. M. R. Bhagwat, Secretary of the Chemists's Unemployment Committee, was present. Miss V. F. Kimball was also present.

The minutes of the previous meeting were approved. The Treasurer read the Auditor's report, covering the statement of income and disbursements from May 1, 1937, to September 30, 1937, and this report was accepted.

Possible representation on the board to select the Perkin Medal was discussed, and upon motion made and seconded, it was decided that as this medal is given for scientific achievement and not for service to the profession, our participation in the award would not be appropriate.

Upon motion made and seconded, it was decided that dues of new members should not be pro-rated until after the first of February.

Mr. Neiman took the chair temporarily and upon motion made and seconded, the following resolution was adopted:

RESOLVED, that the deep appreciation of THE AMERICAN INSTITUTE OF CHEMISTS be extended to Dr. Maximilian Toch for his generosity in contributing to its treasury.

Upon motion made and seconded, a vote of thanks was extended to Dr. Read for his splendid work on the Membership Committee.

Upon motion made and seconded, the Membership Committee was granted

an additional appropriation of $200.00 to carry on its activities.

Upon motion made and seconded, Mr. William S. Roughead was raised to Fellow membership.

Upon motion made and seconded, Mr. Alfred G. Hill was raised to Fellow membership.

Upon motion made and seconded, Mr. Wesley M. Noble was given Junior membership.

The Secretary read a letter from Dr. Rogers, requesting that his resignation from the Council be accepted because of his inability to attend meetings. Upon motion made and seconded, this resignation was tabled.

The Secretary read a letter from Dr. Markwood, and the matter of delinquent members was directed to be brought up at the next meeting of the Council.

Upon motion made and seconded, it was decided to hold the next meeting of the Council on Tuesday, November 23, 1937.

Upon motion made and seconded, the following new members were elected:

FELLOWS

Arenson, S. B.
(1937), *Professor of Chemistry,* University of Cincinnati, Cincinnati, Ohio.

Ashbrook, Donald S.
(1937), *Consultant,* Zoch, Ashbrook and Company, Inc., New York, N. Y.

Berggren, Ruth E. L.
(1937), *Research Chemist,* Kind and Knox Gelatine Company, Camden, New Jersey.

Bezzenberger, F. K.
(1937), *President,* The Cosma Laboratories Company, Cleveland, Ohio.

Bird, R. M.
(1937), *Professor of Chemistry,* University of Virginia, University, Va.

Black, C. S.
(1937), *Head of Department of Chemistry,* Wake Forest College, Wake Forest, N. C.

Blew, Michael J.
(1937), *Research Engineer,* Northeast Sewage Treatment Works, Philadelphia, Penna.

Bowen, C. Verne
(1937), 530 Duncan Avenue, Washington, Penna.

Bridgeman, W. A.
(1937), *President,* Franklin Research Company, Philadelphia, Penna.

Brierley, John R.
(1937), *President,* Childs Pulp Colors, Inc., Brooklyn, N. Y.

Brinton, C. S.
(1937), *Chief Philadelphia Station,* U. S. Food and Drug Administration, Philadelphia, Penna.

Burrell, G. A.
(1937), *In Charge Gas Investigation,* Atlantic States Gas Company, Inc., New York, N. Y.

Butterfield, E. E.
(1937), *Associate in Sanitation,* Albert V. Sielke, Consulting Engineer, New York, N. Y.

Chalkley, Lyman
(1937), *Director of Market Research,* Benton and Bowles, Inc., New York, New York.

Carleton, R. K.
(1937), *Professor of Chemistry,* Rhode Island State College, Kingston, Rhode Island.

Cottle, D. L.
(1937), *Assistant Professor,* Rutgers University, New Brunswick, N. J.

Cowgill, George R.
(1937), *Associate Professor,* Yale University, New Haven, Conn.

Creighton, H. Jermain
(1937), *Professor of Chemistry,* Swarthmore College, Swarthmore, Pennsylvania.

Dargan, William H.
(1937), *Chief Chemist,* Brooklyn Edison Company, Brooklyn, N. Y.

Darrin, Marc
(1937), *Industrial Fellow,* Mellon Institute of Industrial Research, Pittsburgh, Penna.

Downes, A. C.
(1937), *Chemical Engineer,* National Carbon Company, Cleveland, Ohio.

Dunning, H. A. B.
(1937), *President,* Hynson, Westcott and Dunning, Baltimore, Md.

Eisenman, W. H.
(1937), *Secretary,* American Society for Metals, Cleveland, Ohio.

Endres, H. A.
(1937), *Research,* The Goodyear Tire and Rubber Company, Akron, Ohio.

Fazel, Charles S.
(1937), *Chief Research,* The Solvay Process Company, Nitrogen Division, Hopewell, Va.

Fillinger, Harriett H.
(1937), *Professor of Chemistry,* Hollins College, Hollins, Virginia

Fish, F. H.
(1937), *Professor of Analytical Chemistry,* Virginia Polytechnic Institute, Blacksburg, Va.

Gabeler, William H.
(1937), *General Superintendent,* The Davison Chemical Corporation, Baltimore, Md.

Goodman, John B.
(1937), *Research and Investigation,* U. S. Bureau of Reclamation, Denver, Colorado.

Graham, Minnie A.
(1937), *Professor of Physical Science,* Queens-Chicora College, Charlotte, North Carolina.

Griffitts, Fred A.
(1937), *Professor of Chemistry,* Maryville College, Maryville, Tenn.

Gruener, Hippolyte
(1937), *Retired Professor of Chemistry,* Western Reserve University, Cleveland, Ohio.

Hall, Sydney H.
(1937), *Chief Chemist,* General Plastics, Inc., North Tonawanda, N. Y.

Hanmer, H. Rupert
(1937), *Director of Research,* American Tobacco Company, Richmond, Va.

Harden, Wilton C.
(1937), *Chief Chemist,* Hynson, Westcott and Dunning, Inc., Baltimore, Md.

Harrington, V. F.
(1937), *Research Chemist,* 95 Park Drive, Boston, Mass.

Helm, E. B.
(1937), *Director of Research,* Industrial Rayon Corporation, Cleveland, Ohio.

Hill, Douglas G.
(1937), *Instructor in Chemistry,* Duke University, Durham, N. C.

Horn, David Wilbur
(1937), *Professor,* Philadelphia College of Pharmacy, Philadelphia, Pennsylvania.

Huddle, Horace B.
(1937), *Professor of Chemistry,* State Teachers College, Johnson City, Tenn.

Huff, Wilbert J.
(1937), *Chief of Division,* Explosives Division, U. S. Bureau of Mines, Washington, D. C.

Ince, J. W.
(1937), *Head,* Department of Chemistry, Rhode Island State College, Kingston, R. I.

Isenhour, L. L.
(1937), *Chemist,* P. O. Box 98, Oakland, California.

Kirby, G. W.
(1937), *Research Chemist,* The Fleischmann Laboratories, New York, New York.

Kirk, William
(1937), *Assistant Manager,* E. I. duPont de Nemours Company, Dye Works, Penns Grove, N. J.

Knowles, Chester L.
(1937), *Chemical Sales Director*, The Dorr Company, Inc., New York, New York.

Koenig, W. J.
(1937), *Chief Chemist*, Sloane-Blabon Corporation, Trenton, N. J.

Looker, C. D.
(1937), *Director of Research*, Manufacturing Department, International Salt Company, Inc., Ithaca, N. Y.

Lukash, John G.
(1937), *Research Chemist*, H. Kohnstamm and Company, New York, New York.

Mark, J. G.
(1937), *Research Executive*, Dewey and Almy Chemical Company, Cambridge, Mass.

Maxson, R. N.
(1937), *Head of Department of Chemistry*, University of Kentucky, Lexington, Ky.

McLachlan, Robert W.
(1937), *Assistant Professor of Science*, N. J. State Teachers' College, Upper Montclair, N. J.

McLaren, James A.
(1937), *Assistant Chemist*, Bureau of Chemistry and Soils, U. S. Department of Agriculture, Washington, District of Columbia.

Meier, Frank A.
(1937), *Chief Chemist*, The American Platinum Works, Newark, N. J.

Moser, Frank H.
(1937), *Research and Development Chemist*, National Aniline and Chemical Company, Buffalo, N. Y.

Mourane, J. H.
(1937), *Professor of Chemistry*, High Point College, High Point, N. C.

Muskat, Irving E.
(1937), *Research Director*, Pittsburgh Plate Glass Company, Columbia Chemical Division, Barberton, Ohio.

Nicolet, Ben H.
(1937), *Senior Chemist*, Bureau of Dairy Industry, U. S. Department of Agriculture, Washington, D. C.

Noble, Royce J.
(1937), *Consultant*, 21 Woodland Road, Malden, Mass.

Novak, I. J.
(1937), *Chief Chemist*, The Raybestos Division of Raybestos-Manhattan, Inc., Bridgeport, Conn.

Olney, Louis Atwell
(1937), *Professor of Chemistry and Director of Department of Textile Chemistry and Dyeing*, Lowell Textile Institute, Lowell, Mass.

Porter, J. M.
(1937), *Chemical Engineer*, American Cyanamid and Chemical Corporation, Linden, N. J.

Prince, A. W.
(1937), *Head Chemistry Department*, Union University, Jackson, Tenn.

Quam, George N.
(1937), *Associate Professor of Chemistry*, Long Island University, Brooklyn, New York.

Rattiner, Abraham A.
(1937), *Chief Chemist and General Manager*, The Odell Company, Inc., Newark, N. J.

Reynolds, Blythe M.
(1937), *Chemical Engineer*, Heyden Chemical Corporation, Garfield, N. J.

Robinson, E. A.
(1937), *Technical Director*, National Oil Products Company, Harrison, New Jersey.

Rutenber, Charles B.
(1937), *Professor of Chemistry*, Eureka College, Eureka, Ill.

Scott, Austin A.
(1937), *Chief Chemist*, Nestle's Milk Products, Inc., New York, N. Y.

Shelton, E. M.
(1937), *Research*, Laboratory of Dr. T. B. Johnson, Yale University, New Haven, Conn.

Smith, Clayton S.
(1937), *Professor of Physiological Chemistry and Pharmacy,* The Ohio State University, Columbus, Ohio.

Smith, Leighton B.
(1937), *Research Chemist,* Lever Brothers, Cambridge, Mass.

Spencer, Hugh M.
(1937), *Assistant Professor,* Cobb Chemical Laboratory, University of Virginia, Charlottesville, Va.

Tanner, H. G.
(1937), *Research Chemist,* E. I. duPont de Nemours and Company, Wilmington, Del.

Trout, William E., Jr.
(1937), *Professor of Chemistry,* Mary Baldwin College, Staunton, Virginia.

Troxel, Shirley M.
(1937), *Instructor in Science,* Trenton State Teachers' College, Trenton, New Jersey.

Van der Meulen, Peter A.
(1937), *Professor of General and Physical Chemistry,* Rutgers University, New Brunswick, N. J.

Vieweg, Hermann F.
(1937), *Research Chemist,* Johns-Manville, Manville, N. J.

Willard, Mary L.
(1937), *Assistant Professor of Microchemistry,* The Pennslvania State College, State College, Penna.

Williams, Arthur S.
(1937), *Consulting Chemical Engineer,* 80 Broad St., Elizabeth, N. J.

Wilson, A. J.
(1937), *Chairman Chemistry Department,* N. C. State College of Agriculture and Engineering, Raleigh, North Carolina.

Wuertz, A. J.
(1937), *Acting Director,* Carrollville Laboratory, E. I. duPont de Nemours and Company, Wilmington, Delaware.

Fortner, Louis R.
(J.1937), *Chemist in Charge of Analytical Laboratory,* Aluminum Research Laboratories, Aluminum Ore Company, East St. Louis, Illinois.

Lurie, William
(J.1937), 567 Fox Street, New York, New York.

Wegrzyn, Stanley W.
(J.1937), *Research Chemist,* Simplex Wire and Cable Company, Cambridge, Massachusetts.

Upon motion made and seconded, the Secretary was instructed to write a letter to the Executive Chairman of the Chemists' Unemployment Committee to ask that the date of transfer of the Committee to the INSTITUTE be postponed from November first to December first of this year.

The Secretary offered to take care of the incorporation of the Committte on Unemployment when it should be transferred to the INSTITUTE.

Mr. Breyer read a four point program for the Committee on Unemployment, and after discussion each Councilor was requested to study this program and send his suggestions to Mr. Breyer before the next meeting.

Dr. Read reported his attendance at the dedication services of the chemistry department of the University of Delaware.

THE AMERICAN INSTITUTE OF CHEMISTS will occupy a booth jointly with the Committee on Unemployment for Chemists, at the Sixteenth Exposition of Chemical Industries. Members of the INSTITUTE are cordially invited to visit this booth and to meet members in charge.

CHAPTERS

New York

Chairman, William T. Read *Vice-chairman,* D. D. Berolzheimer
Secretary-treasurer, James W. H. Randall
52 East 41st Street
New York, N. Y.

Council Representative, Frederick W. Zerban

The New York Chapter met at The Chemists' Club, New York, N. Y., on October 29, 1937. The speaker of the evening was Mr. A. Cressy Morrison, who spoke on "The Committee on Unemployment, Its Work and Aims." He told of his early connections with the Committee and of its work to raise finances. A surprising response was received in reply to the first letters sent to some four thousand chemists. At that time the depression was at its height, and many pathetic incidents came to the attention of the Committee. Men who formerly held positions paying as much as $20,000 a year were literally on relief. Industries were letting men go. Research was cut down. Many chemists who were very good men were out of employment in addition to the marginal cases.

Chemists as a group responded to the Committee's appeals, and contributions ranged from fifty cents up. Chemical industries also contributed. Perhaps the largest contributors of them all was the working personnel of the Committee, for it served throughout on a very low compensation. The total amount collected for this work over the five years of the Committee's existence was $57,000, due to the generosity of individual chemists and the chemical industry. A total of fifteen hundred individuals responded to requests.

Records were kept in scrupulous order and Mr. Bhagwat, with the able assistance of Miss Jean Miller, executed the daily routine at the Committee's office most efficiently.

It is interesting to know that there are about seven thousand possible contributing chemists within fifty miles of New York. The Committee could not reach them all. Some, of course, were in high positions, but four or five thousand were reached. The Committee also had to cope with the fact that some employers thought (and some still think) that chemists who apply for work through a charitable organization must be marginal chemists. There are two kinds of marginal chemists: one is the man over forty-five in the prime of life. Organizations, especially where some sort of insurance or pension plan is established, do not want to employ these men because they have established an age limit. Then, too, young men are at the head of some businesses and they do not feel inclined to hire any but young men. Because of this, there is a great difficulty in placing these older men. Even the best qualified men can not always get employment. The second group of marginal chemists are the men who may have majored in chemistry but have had no practical

experience and who have not learned how to get along. For these men, my theory would be to take any job in the chemical industry and stick to it. If a man will go into any good company in any position with determination and ambition, trying to learn all about that business, sooner or later he will be recognized.

One of the good things about the functioning of the Unemployment Committee has been the reception of applicants by Mr. Lomax and Mr. Bhagwat. Mr. Bhagwat understands men. But even he knows them much better now than five years ago! He has given his heart and life to build up the morale of the despondent and to encourage the depressed. This is a contribution to the chemists that can not be measured by common standards.

Another thing that has been learned is that the chemist is inclined to confine his activities and thoughts to the circle of his own profession. He may go on ten or fifteen years in a position doing certain useful things, but it seems that he takes very little interest in outside matters. I would recommend that chemists reach out mentally beyond their profession to gain knowledge of all industrial movements. If they then become unemployed they will know where to go and what to do to land on their feet again.

During the past years, the Committee has had to carry along many chemists charitably of necessity. Now there can be no further charity appeal. That source of income will have to be abandoned. This Committee should be continued and serve chemists and chemical industries who wish contact with each other, but not on the basis of charity. This Committee should be made national. Chemists should be able to come to this Committee in confidence and file their qualifications for openings best suited to them. Manufacturers would be willing to contribute something toward the resources which such an organization would give them to secure a wide selection of high class employees. They should be glad indeed to have such an employment bureau intelligently run by chemically trained people. There is among the engineering societies a definite organization for employment. I think that that system should be carefully studied before final conclusions are made regarding such a body for chemists. There is another thing that should be mentioned: If such a bureau is to succeed, it must gain a reputation for keen judgment in supplying men of high professional standing. It had better not send anyone than send the wrong person for a job.

Such a bureau cannot become established in a very short time. At least two years or so should be allowed, if the experiment is to be successful. I do not think that you can educate chemists or employers to the use of such a bureau without much publicity. The offices of the bureau should be kept separate from the office of the association in charge, so that the chemist applicant is not subjected to publicity. The file must be confidential. Many a man is unhappy and unsuited to his position but does not dare say so for fear of reprisals. If a man obtains a position through this bureau, he should pay a reasonable fee toward its support. This Committee perhaps built better than it knew. It started things with a good motive. It will close its work with the approval of the entire industry, and it is pleasing to know that it will be continued as a service organization of real importance to both the employer and employee.

During the discussion following Mr. Morrison's talk, Mr. Breyer expressed his appreciation of the guidance given

the Committee by its "senior counsellors", among them the speaker of the evening. He also asked for suggestions from everyone interested in the chemical profession as to methods of carrying out the Committee's objectives.

Mr. Bhagwat briefly recounted the progress of the Committee from its early beginnings in borrowed space without funds, and expressed his deep appreciation of the assistance given the Committee by individual chemists, chemical industries, and by all who contributed in many ways.

Niagara

Chairman, Howard W. Post *Vice-chairman*, William R. Sheridan
Secretary-treasurer, Luther M. Lauer
98 North Buffalo Street
Orchard Park, N. Y.

News Reporter to THE CHEMIST, W. A. Smith
Council Representative, Arthur W. Burwell

The Niagara Chapter met at the Niagara Club, Niagara Falls, New York, on October 15, 1937, with an attendance of nineteen. Following reports by the Treasurer, the Membership, and the Welfare Committees, the Committee on Arrangements announced the following schedule of meetings for the coming year: December third; "Proper Contact Between School and Industries"; February fourth, "Causes of Industrial Failure"; April first, and May twenty-seventh, subjects to be announced.

The speaker of the evening was former State Senator Williams who discussed the effects on chemists of the economic changes now extant. Formerly, he said, "willingness to work was the faculty insuring success. Today that willingness is no longer a guarantee of success. Today there is too much of everything, which is the main trouble, and the inability of the individual to acquire it is the problem before us. The system comprises growth, peak, anticlimaxes, then loss of empire, as evidenced by the civilizations of Babylon, Phoenecia, Greece, Rome, Spain, Great Britain, and the United States. The fear that plagues me is that of economic saturation. Have we reached this point? The chemists must face this possibility and contribute towards converting what may be our peak into a plateau.

Laissez faire as a policy did not work with previous nations, and it will not work for us. We must realize the danger and prevent it. We can make the peak a plateau. Intelligent people must recognize the danger and solve the problem.

During the discussion that followed, Mr. W. A. Smith brought out the point that because of its position between the owner and oligarchy above and the worker below, changing conditions will leave the professional type in better shape than any of the other groups.

Dr. Burwell stated that selfishness makes us desire more than circumstances justify. Therefore, professional men should adopt a broad, unselfish view. This will prevent a smash, but only if selfishness is cast aside for intelligent, unselfish and useful effort for the good of all. England and American have been taught to be "good sports" and this fact will result in

longer and more successful life for these nations than for other nations.

Dr. Brailier asked the question "What are we looking for—satisfaction in life? Money? Tangible things like position, etc? Often we pass up the real satisfactions of a life well-rounded in achievement, for money and similar satisfaction."

Dr. Benner remarked that a "lot of us would feel better if we made our life play and pleasure (no matter how involved the problem) instead of looking at the materialistic view alone."

Pennsylvania

Chairman, Gilbert E. Seil *Vice-chairman,* Walter L. Obold

Secretary-treasurer, Maurice L. Moore
Sharpe and Dohme, Inc.
P. O. Box 1404
Philadelphia, Penna.

Council Representative, Joseph W. E. Harrisson

Washington

Honorary President, Charles E. Munroe *President,* Louis N. Markwood
Vice-President, Norris W. Matthews *Treasurer,* James B. Martin

Secretary, A. P. Bradshaw
2121 New York Avenue, Washington, D. C.

News Reporter to THE CHEMIST, James F. Couch
Council Representative, Louis N. Markwood

BOOKS

INORGANIC PREPARATIONS. By Alexander King. *D. Van Nostrand Company.* $2.50.

This little book is designed by its author as a text book of advanced inorganic chemistry to replace the common teaching of that subject as part of the course in qualitative analysis.

As stated by the author in his preface, the very nature of qualitative analysis, as well as the obsolescence of the older system with the introduction of micro-chemistry, both tend to obscure the theoretical basis which it is the primary object of the course to teach.

On the other hand, while inorganic preparations are a greater burden on the teacher and are more expensive both in apparatus and materials, they provide a wider range of reactions and technique to which it is much easier to correlate the theory. The book itself contains one hundred and eighty-seven preparations described in detail and arranged in order of the complexity of the compounds formed. An equal number of preparations have been sketched or indicated.

As a text book, the theoretical background has been left entirely for the teacher to supply, so that its adoption would seem to require a great deal of energy on the part of our teachers, rather than a following of the path of least resistance. The teacher who

is willing to expend so much energy could undoubtedly secure results no matter what text he used. On the other hand, it seems thoroughly desirable to the reviewer to place stress again on the preparative side of chemistry now that the cult of micro-analysis seems so likely to overwhelm us.

The preparations in the book are well selected and detailed, so that, if followed with accuracy, good results should be secured. The documentation is fair and the index and make-up of the book are such as to recommend it for permanent reference, which the reviewer does warmly.

—KARL M. HERSTEIN, F.A.I.C.

LABORATORY METHODS OF ORGANIC CHEMISTRY. By L. Gatterman. Revised by Heinrich Weiland and translated from the 24th German Edition. *Published by Macmillan Company.* $5.00.

The writer, like a majority of his generation, was brought up on the third edition of Gatterman and therefore is particularly glad to welcome an up-to-date revision of the same publication.

There are many features in which the present edition differs from the earlier. For one thing, the chapter on analysis of preparations has largely been rewritten from the point of view of "meso-analytical" methods (semi-micro).

The format of the book has been improved by enlarging the page and its contents by including many newer preparations. As always, the theoretical discussion following each preparation makes the book especially useful from the pedagogical point of view. An interesting new chapter on natural compounds including such varied materials as sugars, nicotine, haemin, and bile acids has been added.

The outstanding defect of the book is the fact that it almost completely ignores the excellent literature which has grown up in this country on organic synthesis. Nevertheless, Gatterman remains an excellent text book for students of organic chemistry and a convenient reference thereafter for a large variety of synthetic methods.

—KARL M. HERSTEIN, F.A.I.C.

HANDBOOK OF CHEMISTRY. By N. A. Lange. Second Edition. Published by *Handbook Publishers, Inc.* $6.00.

The number of handbooks and the volume of each individual handbook seem to grow in parallel according to the well known snow-ball law. Nevertheless, the present one is a welcome addition to the list. It contains a large variety of tables in its first part, including all of the standard tables and an appendix of two hundred and fifty pages of mathematical formulae, theorems, and tables.

The features of the present handbook which are particularly commendable are first the typography. The simple Gothic type is used throughout the book which lends itself to clarity and ease of reading the pages. The table of organic compounds, which contains nearly four thousand five hundred entries without duplication, has been retained in tabular form rather than in dictionary form, and, in addition to the usual data, includes a column of references to the fourth edition of *Beilstein.*

Unfortunately, like the publishers of other handbooks, it has been impossible to resist the temptation to increase the volume of the book by the inclusion of more and more data of specialized interest. Despite the total bulk, however, of nearly two thousand pages, the volume is handy, well-bound, and deserves a place on the shelf of every working chemist.

—KARL M. HERSTEIN, F.A.I.C.

The Colloid Chemist

Tune—The Major-General's Song in "The Pirates of Penzance"

I am the very pattern of a modern Chemist Gineral—
I've information vegetable, animal, and mineral.
I am well up in physics, quote experiments historical,
From Thales, Volta, Faraday, in order categorical.
Equations both of integral and differential calculus,
I use to plumb the vagaries of beings animalculous—
In fact, in matters vegetable, animal and mineral,
I am the very pattern of a modern Chemist Gineral.

The filter-passing haze that spoils the very best analysis,
Impurities that wreck your final product by catalysis,
The clouds, and fogs, and rains that go to make the weather fair or foul,
The mists a gas-mask won't adsorb, but make the soldiers swear and howl,
And where the agates get their rings, and how the comet swings its tail,
And how the pearly nautilus on tropic waters flings its sail—
The colloid chemist shows he is the modern Chemist Gineral.

If you would know how plants suck up their food by capillarity,
The differences in grade of crops, the cause of their disparity,
If you would use the messes that organic chemists cuss like sin,
See lifelike ultramicrons wriggle in a sol of protein,
If you would know of dyeing, rubber, leather, or linoleum,
Of foods, flotation, brewing, soaps, glues, paper or petroleum,
You'll find in matters vegetable, animal, and mineral,
The colloid chemist proves he is the modern Chemist Gineral.

Jerome Alexander, F.A.I.C.

Correction

The authors of *Inventions and Their Management*, which was reviewed in the October, 1937, issue of THE CHEMIST, are Alf K. Berle and L. Sprague de Camp.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, etc. REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, and MARCH 3, 1933

Of THE CHEMIST, published monthly except June, July, and August at New York, N. Y., for October 1, 1937.

STATE OF NEW YORK } ss.
COUNTY OF NEW YORK }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Vera F. Kimball, who, having been duly sworn according to law, deposes and says that she is the Editor of THE CHEMIST and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Name of	Post Office Address
Publisher: THE AMERICAN INSTITUTE OF CHEMISTS,	233 Broadway, New York, N. Y.
Editor: Vera F. Kimball,	233 Broadway, New York, N. Y.
Managing Editor: Vera F. Kimball,	233 Broadway, New York, N. Y.
Business Managers: THE AMERICAN INSTITUTE OF CHEMISTS,	233 Broadway, New York, N. Y.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given).

THE AMERICAN INSTITUTE OF CHEMISTS, 233 Broadway, New York, N. Y.
(Non-profit making corporation. No stockholders.)

Maximilian Toch, President, 386 Fourth Avenue, New York, N. Y.

Robert J. Moore, Vice-president, 230 Grove Street, Bloomfield, N. J.

B. H. Knight, Treasurer, 50 East 41st Street, New York, N. Y.

H. S. Neiman, Secretary, 233 Broadway, New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) NONE.

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Vera F. Kimball
(Signature of Editor)

Sworn to and subscribed before me this fourteenth day of October, 1937.

Marie A. Kurtzke, Notary Public
(My commission expires March 30, 1938)

NORTHERN LIGHTS

By Howard W. Post, F.A.I.C.

A recent article appearing in *Canadian Journal of Research* **15B,** 331, (1937), by D. T. Mather and T. Thoorvaldson reports some work done on the action of superheated steam on certain salts of amphoteric metallic oxides. The temperature of the steam was kept at from 100 degrees to 300 degrees in various runs, and the vapors used were saturated. As a preliminary, the structure and hydration of certain of the oxides was determined. Precipitated alumina, treated from 170 degrees to 350 degrees, then dried over dehydrite at 21 degrees C came out as monohydrate. Any dehydration temperature below 920 degrees may be used to obtain this monohydrate. When similarly treated ferric oxide loses water, giving a material of the structure of hematite. Tricalcium aluminate was prepared and found to form the hexahydrate between 150 degrees and 300 degrees.

The first step in the action of superheated steam on dicalcium ferrite at temperatures between 100 degrees and 300 degrees results in a rapid hydration to the dihydrate, followed by the production of calcium hydroxide and hematite. Tricalcium aluminoferrite at temperatures within the same range gave first the hexahydrate of tricalcium aluminate and hydrated monocalcium ferrite, then calcium and ferric hydroxides and oxides.

Anything which has even the least bearing on possible geologic chemistry makes interesting reading. In this case the paper states quite frankly that the

substances under consideration are those recently found to be present in Portland cement, but it is not at all improbable that similar reactions have happened in the prehistoric subterranean laboratories of nature.

Some of our readers may be interested in information which we culled from *Canadian Chemistry and Metallurgy* of September, 1937, relative to the ownership of Shawinigan Chemicals, Ltd. In the first place it is a subsidiary of and is owned entirely by Shawinigan Water and Power Co. There are 18,500 shareholders in this organization of whom 18.5 per cent reside in Great Britain, and on the continent of Europe, 10.2 per cent in the United States and 80.7 per cent in Canada. Other countries total only 0.6 per cent. Of the Canadian shares 67.7 per cent are held in Quebec and 13 per cent elsewhere in the Dominion.

Tentative plans for the forthcoming meeting of the Society of Chemical Industry next June are also published in the same issue. It is intended to spend some time seeing Quebec followed by a tour of Shawinigan Falls after which the visitors will proceed to Ottawa for the joint meeting of the Society with the two Canadian societies. After the meeting, parties will be conducted on tours of various industrial districts including Sudbury, Toronto, and Niagara Falls.

We were interested also in an article by Chester L. Baker of the Philadelphia Quartz Co., associated with National Silicates, Ltd. of Toronto, on the subject of sodium metasilicate, and what seemed to be of particular interest to us was a review of the uses of this compound in the dairy industry. Mr. Baker tells something of the way in which sodium metasilicate acts in the preservation of the physical and biological cleanliness so necessary in this industry. The compound is a good solvent for casein and milk albumin, and in addition saponifies fats precipitating the calcium in a form which can be easily scrubbed off. There is sometimes a last film of dirt on a surface such as a milk bottle and this last film often harbors the bacteria generally so harmful. This also is eliminated according to the article. For washing dairy equipment it is customary to use solutions of strength from one-half to three pounds to each hundred gallons of water used. In the bottle washing machines, it is customary, on account of the lubricating effect of the material, to fill the first tanks with caustic soda and use the metasilicate only in the last tank.

The Society of Chemical Industry meets at Ottawa next June for its general meeting. Lord Leverhulme, now serving his second term as President will preside.

Robert J. Moore, F.A.I.C., spoke at a meeting of the Indiana Section of the American Chemical Society held on November twelfth. His subject was, "The Changing Varnish Industry."

Willem Rudolfs, F.A.I.C., addressed the meeting of the North Jersey Section of the American Chemical Society, held November eighth, on "Trade Wastes".

CHEMISTS ABROAD

By James N. Taylor, F.A.I.C.

"CARRYING Coals to Newcastle" could well be the caption of this squib. "Why Chemists Get Fired," however, is the title of an editorial from *Chemical Trade Journal and Chemical Engineer (London)* for October 1, 1937. "Under the above title," states the editorial, "our New York contemporary, *Chemical Industries,* publishes this month the first selection of a series of replies received from representative American operating and research executives to a question asking them in what way many of the younger technical men employed in the chemical industry have been found wanting. A striking feature of the replies is the stress laid in nearly every instance on the absolute necessity for the young chemist or chemical engineer possessing an adequate command of both written and spoken English. In most cases, also, the replies to the question elicited the views that highly specialized qualifications are not desired in the technical entrant into industry, but that it is expected that his command of the fundamentals of chemistry, and preferably also of mathematics and of physics, shall be sound. Apart from the purely academic aspect, many young technical men have failed, in the opinion of American employers, by their protracted reluctance to discard what is referred to in one instance as their "cap-and-gown psychology", and their inability to recognize the necessity for their sympathetic coöperation not only with their colleagues, but with the foremen and workmen on the plant. A young chemist's knowledge of economics, it is considered, should be at least such that he fully realizes whence his salary is derived and the conditions under which he can reasonably expect a progressively higher rate of remuneration."

GERMANY'S autarchic policy of substituting domestically manufactured synthetic products for commodities formerly imported is reflected in notable gains in the number of workers accredited to the chemical industry, surpassing in 1936 the former boom level attained in 1928-1929, according to a report from *American Consul Sydney B. Redecker, Frankfort-on-Main.*

Some branches of the industry, particularly those engaged in the manufacture of the newer synthetics and materials basic in the production of such products, are complaining of a shortage of professional and scientific personnel, including chemists, engineers, and physicists, the Consul reported.

The total number of wage workers and salaried employees in the German chemical industry, including those engaged in the mineral oil, rubber and synthetic fiber branches, increased eleven per cent last year, or from 421,900 to 468,480, while total disbursements for wages and salaries gained thirteen per cent to $418,440,000 from $370,000,000 in 1935, records indicate. Owing to the stabilization of wage rates at the 1932 depression low-level, however, total salary and wages paid out last year by the chemical industry continued well under the 1929 level of $468,500,000 which was distributed to 452,984 workers.

AMONG other objects the Canadian Institute of Chemistry was designed to be a body capable of rendering some public service, states an editorial in *Canadian Chemistry and Metallurgy* (*Toronto*) for October. No professional organization, possessing rather high standards of qualification, in a country devoid of legislation compelling the registration of industrial chemists and chemical engineers, will ever be able to enroll all those engaged in professional chemical work; and yet such a census should be available for general and national reasons. Is not the Canadian Institute of Chemistry, then, the body into whose hands should be placed the whole business of securing and maintaining a register of chemically-skilled persons?

For several years the Institute has concerned itself with employment, quite without regard to whether or not the unemployed were members. This work has never been known sufficiently, else it would have received more recognition. With a whole new set of national considerations, calling less for the creation of committees or organizations than for the putting to use of those in existence, opportunities are at hand for service in the work of continued fact-finding and planning which Canada must undertake if she is to play her part adequately in national and Empire preparations for defence or world emergencies.

DR. ALBERT SZENT-GYORGYI, professor of medical chemistry in Szeged University, Hungary, has been awarded the 1937 Nobel prize in physiology and medicine, states an *Associated Press* dispatch. The award was for discoveries of biological oxidation processes, especially regarding vitamin C and fumaric acid catalysis.

PROFESSOR E. C. C. BALY, who for twenty-seven years held the Chair of Inorganic Chemistry at Liverpool University, retired on September thirtieth. From 1915 to 1921, Professor Baly was deputy-inspector of high explosives at Liverpool. He is a vice-president of the Institute of Chemistry and of the Chemical Society, and a past-president of the British Association of Chemists.

NEWS

Dr. Frank J. Tone, president of the Carborundum Company, of Niagara Falls, N. Y., and discoverer of the first commercial process for producing silicon metal, was elected to receive the Perkin Medal of the American Section of the Society of Chemical Industry. Presentation of the medal, which is for "valuable work in applied chemistry," will be made at a joint meeting of the Society of Chemical Industry and the American Chemical Society on January seventh at The Chemists' Club, New York, N. Y.

The selection of the Perkin Medalist is made by a committee representing the five chemical societies in the United States. Dr. Marston Taylor Bogert, F.A.I.C., will make the presentation of the medal to Dr. Tone.

Dr. Tone, who is the father of the motion picture actor, Franchot Tone, is a pioneer in developing synthetic abrasives and refractories. He discovered silican monoxide, fibrous silicon oxycarbide and electric furnace mullite and spinel. He has one hundred and fifty patents.

The Chemical Industry Medal for 1937 was presented November fifth to Mr. E. J. Crane, Editor of *Chemical Abstracts*, at a joint meeting of the American Section of the Society of Chemical Industry and the American Chemical Society, held at The Chemists' Club, New York, N. Y. Mr. James G. Vail, F.A.I.C., presided. Dr. Austin M. Patterson first spoke on the accomplishments of the medalist and then the presentation of the medal was made by Dr. A. E. Marshall.

In accepting the medal Mr. Crane spoke on the importance of word usage in the transmission of scientific ideas, his paper being entitled, "Words and Sentences in Science and Industry."

Ross A. Baker, F.A.I.C., Professor at the College of the City of New York, is spending a year's sabbatical leave with his family in Europe.

The Chandler Centennial Dinner, in memory of the aniversary of Professor Chandler's birth, was held at the Waldorf-Astoria Hotel, New York, N. Y., November fourth. Speakers included Dr. Nicholas Murray Butler, Dr. Willis R. Whitney, and Dr. Frank C. Whitmore.

Maximilian Toch, President A.I.C., was elected an honorary member of the Chemical, Metallurgical and Mining Society of South Africa, Johannesburg.

Ernst Berl, F.A.I.C., has been appointed a member of the Committee on Cellulose and Allied Substances of the National Research Council.

Dr. Klare S. Markley, F.A.I.C., has been transferred to the Soy Bean Research Division of the Bureau of Chemistry and Soils, U. S. Department of Agriculture, in Urbana, Illinois. Dr. Markley, in addition to his work as biochemist for the Bureau of Chemistry and Soils in Washington, D. C., has served as permanent secretary for the Washington Professional Chapter of Alpha Chi Sigma, since its foundation.

William S. Calcott, F.A.I.C., spoke before a meeting of the Northeastern Section of the American Chemical Society, held October eighth, on the subject of "Control of Reactions by Organic Addition Agents."

The American Section of the Société de Chimie Industrielle will meet November nineteenth in Room 309, Havemeyer Hall, Columbia University, New York, N. Y., at 8:15 p.m., at which time the Lavoisier Medal of the Société Chimique de France will be presented to Dr. Thomas H. Norton, by the French Consul General, Comte de Ferry de Fontnouvelle. Dr. Francis F. Lucas, member of the technical staff of the Bell Telephone Laboratories, will speak on "Ultra Violet Microscopy (Lantern)". Officers of the American Section of the Société de Chimie Industrielle include Dr. D. D. Jackson, F.A.I.C., president; Professor Henri Mouquin, vice-president; and Dr. Jerome Alexander, F.A.I.C., Secretary. Members of the American Chemical Society, The American Institute of Chemists, the American Electrochemical Society, and the American Section of the Society of Chemical Industry are invited to attend this meeting

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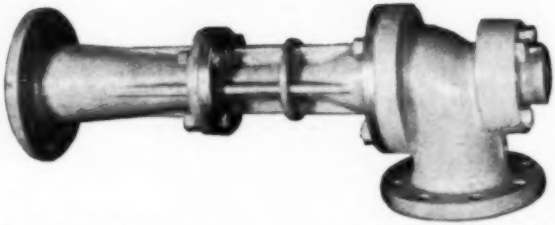

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